Amendments to the Claims:

  This following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

  1–12. (canceled)

  13. (currently amended) A method comprising:

  providing a gridless layout of a circuit design;

  providing a plurality of pins of the gridless layout to be routed together using a net, each pin having a current value associated with it;

  using at least one current value, determining a first current requirement for a first track segment of the net;

  determining ~~providing~~ a first track width for [[each]] the first track segment of the net based on the first current requirement; and

  performing an ~~automated~~ automatic routing of the net using [[a]] the first track segment ~~of the net~~ in the gridless layout, wherein the automatically routed first track segment has [[a]] the first track width ~~as provided~~.

  14. (currently amended) The method of claim 13 further comprising:

  using at least one current value, determining a second current requirement for a second track segment of the net;

  determining a second track width for the second track segment of the net based on the second current requirement, wherein the second track width is different from the first track width; and

  performing an ~~automated~~ the automatic routing of the net using [[a]] the second track segment ~~of the net~~ in the gridless layout, wherein the automatically routed second track segment has [[a]] the second track width ~~as provided, and the second track width is different from the first track width~~.

15. (currently amended) The method of claim 13 wherein performing an ~~automated~~ automatic routing of <u>the net</u> ~~a first track segment~~ comprises:

forming a grid based on positions of the pins;

finding a first route path to connect the pins using the grid; and

routing around an obstacle in the first route path using an unobstructed path, wherein the unobstructed path is not on the grid.

16–22. (canceled)

23. (new) The method of claim 13 wherein determining the first track width comprises referring to a look-up table.

24. (new) The method of claim 23 wherein determining the first track width is also based on a frequency of the net, and the method further comprises:

when an entry for the frequency of the net is not in the look-up table, interpolating to determine the first track width using on at least two entries in the look-up table.

25. (new) The method of claim 13 wherein determining the first track width is also based on a frequency of the net, and the method further comprises:

providing a warning message to a user when frequency information is not provided for the net.

26. (new) The method of claim 13 wherein determining the first track width comprises consulting to at least one of a formula, equation, or table.

27. (new) The method of claim 13 wherein determining the first track width comprises:

evaluating a current density function having as input at least one of a layer of the first track, a frequency of the net, or the first current requirement.

28. (new) The method of claim 14 further comprising:

using at least one current value, determining a third current requirement for a third track segment of the net;

determining a third track width for the third track segment of the net based on the third current requirement; and

performing the automatic routing of the net using the third track segment in the gridless layout, wherein the automatically routed third track segment has the third track width.

29. (new) The method of claim 28 wherein there are three pins and a sum of the current values associated with the three pins is zero.

30. (new) The method of claim 28 wherein a sum of the first, second, and third current requirements is zero.

31. (new) The method of claim 29 wherein the current value associated for at least one of the three pins is negative.

32. (new) The method of claim 28 wherein if a current value associated with a pin directly coupled to the second track is larger than the other current values, the second track width will be greater than the first track width.

33. (new) A method comprising:

providing a plurality of pins of a layout to be routed together using a net, each pin having a pin value associated with it;

using at least one pin value, determining a first requirement for a first track segment of the net;

determining a first track width for the first track segment of the net based on the first requirement;

performing an automatic routing of the net using the first track segment, wherein the automatically routed first track segment has the first track width;

using at least one pin value, determining a second requirement for a second track segment of the net;

determining a second track width for the second track segment of the net based on the second requirement, wherein the second track width is different from the first track width; and

performing the automatic routing of the net using the second track segment, wherein the automatically routed second track segment has the second track width.

34. (new) The method of claim 33 wherein each pin value is a current value associated with each pin.

35. (new) The method of claim 33 wherein each pin value is a power value associated with each pin.

36. (new) The method of claim 33 wherein determining a first track width for the first track segment takes into account at least one of current, switching frequency, noise margin, capacitance, electromigration, IR drop, or self-heating.

37. (new) The method of claim 33 wherein determining the first track width comprises:

evaluating a current density function having as input at least one of a layer of the first track, a frequency of the net, or the first requirement.

38. (new) The method of claim 33 wherein determining the first track width comprises consulting to at least one of a formula, equation, or table.

39. (new) A method comprising:

providing a plurality of first pins of a layout to be routed together using a first net, each first pin having a pin value associated with it;

providing a plurality of second pins of the layout to be routed together using a second net, each second pin having a pin value associated with it;

using a pin value associated with at least one of the first pins, determining a first track width for the first net;

performing an automatic routing of the first net using a track having a first track width;

using a pin value associated with at least one of the second pins, determining a second track width for the second net; and

performing an automatic routing of the second net using a track having the second track width, wherein the second track width is different from the first track width.

40. (new) The method of claim 39 wherein each pin value is a current value associated with each pin.

41. (new) The method of claim 39 wherein each pin value is a power value associated with each pin.

42. (new) The method of claim 39 wherein determining the first track width comprises:

evaluating a current density function having as input at least one of a layer of the first track, a frequency of the net, or the first requirement.

43. (new) The method of claim 39 wherein determining the first track width comprises consulting to at least one of a formula, equation, or table.